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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/486,264	05/12/2000	GREGOR SCHWEGLER	2046/48639	3695

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EXAMINER

KILKENNY, TODD J

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 05/06/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/486,264

11/12
Applicant(s)

SCHWEGLER, GREGOR

Examiner

Todd J. Kilkenny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. The indicated allowability of claims 3-7, 10, 12 and 13 is withdrawn in view of the newly discovered reference(s) to Ragout (US 4,467,836) and Champleboux et al. (US 4,895,185).

Response to Arguments

2. Applicant's arguments with respect to claims 1 - 16 have been considered but are moot in view of the new ground(s) of rejection. Newly cited references Ragout and Champleboux et al. disclose reinforcing devices that have their ends split to promote a firmer attachment to an end element in connection to a supporting structure. Splitting the ends of the reinforcing devices is taught to increase the connection strength to the end elements and therein to the supporting structures in response to any tensile load exerted thereon.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "12" has been used to designate both a threaded bore in Figure 2 and an anchor head in Figures 4 and 5. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "2" and "12" have both been used to designate the left side anchor head and reference characters "3" and "13" have both been used to

designate the right side anchor head in Figures 1, 4, and 5. It is suggested to amend the reference characters to the anchor heads in Figures 4 and 5, and in the corresponding sections of the specification, to "2" and "3", respectively, to overcome this objection and the objection stated above in paragraph 3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because a better visible connection should be made between the reference number "2" and the drawing of Figure 4. This can be fixed either by moving the reference number "2" closer to the drawing or by using a line to identify what "2" is labeling. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 12' in Figure 5. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 8, 9, 15, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 8 recites the limitation "reinforcing devices" in line 4. There is insufficient antecedent basis for this limitation in the claim as the specification identifies the devices as clamping devices (see Specification page 6, lines 10 – 20). Furthermore, "reinforcing devices" as used in line 4 of claim 8 and line 2 of claim 15 is already used to identify the carbon panel throughout the claims, which makes this second usage, confusing. It is suggested to change "reinforcing devices" in line 4 of claim 8 and in line 2 of claim 15 to -- clamping devices --.

10. Claims 9 and 16 recite the limitation "the force introduction point" in lines 3 and 2, respectively. There is insufficient antecedent basis in the specification for this limitation in the claims as it appears that the specification fails to define "a force introduction point". Therefore, it is unclear what "the force introduction point" refers to?

11. Claim 15 recites the limitation "threaded bolts" in line 2. There is insufficient antecedent basis in the specification for this limitation in the claim as the specification appears to only define "threaded rods" or "threaded dowels".

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1 – 7, 9-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (Specification, page 2, lines 28 – page 3, line 36) in view Ragout (US 4,467,836) and Champleboux et al. (US 4,895,185).

Applicant admits that it is known to use carbon panels for reinforcing supporting structures, wherein the carbon panels are anchored at their ends (specification, page 2, lines 28 – 35) and in some known instances attached in a pretensioned state to the face of the supporting structure (Specification, page 3, lines 24 – 36). Applicant's claimed invention as recited differs from the admitted prior art in that the carbon panel is split into at least two strips extending parallel to or at an acute angle with respect to each other at an end. However, splitting the ends of reinforcing devices is known as evidenced by both Ragout (reinforcing element 14 in Figures 1 – 4) and Champleboux et al. (reinforcing element 4, Figures 1 and 5), wherein the reinforcing devices are split at their ends so as to be "attached extremely firmly to rigid end pieces in order to allow the entire assembly to resist very significant forces" (Ragout; Column 1, lines 50 – 55) by producing a self-locking fit that increases the connection in response to any tensile load exerted on the reinforcing plies (Ragout; Column 3, lines 15 – 21); and as disclosed by Champleboux et al. to increase the linking quality between the reinforcing

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devices and the end pieces to which they are linked (Champleboux et al.; Column 1, lines 31 – 44).

In view of the teachings to Ragout and Champleboux et al., it would have been obvious to one of ordinary skill in the art at the time of the invention to split the ends of the admitted prior art carbon panel reinforcing devices so as to produce an attachment of the carbon panels to end elements that is self locking and therefore extremely firm in response to tensile load exerted on the reinforcing panels, wherein one skilled in the art would readily recognize in view of the teachings of Ragout and Champleboux et al. that the split ends would need to terminate in an accommodating end element.

In regard to claim 2, as disclosed by Ragout, both ends of the reinforcing devices are split and terminated in end elements (Ragout, Figures 1 and 2) to accommodate the split ends in a self locking connection so as to achieve the desired firmer fit.

As to claim 3, again as disclosed by Ragout, the split end elements are fit into slots located wedgewise relative to one another (unlabeled, but recognized as applicant's "retaining slots" as clearly diagrammed in Figure 3).

As to claim 4, as disclosed by both Ragout and Champleboux et al., the reinforcing devices are split at their ends into superimposed strips of approximately equal thickness (see Figures).

As to claims 5 and 6, Ragout discloses including notches, ribs, or bumps on the locking surfaces (i.e. recognized as the "retaining slots") to increase the adherence and attachment between the reinforcing devices and these surfaces.

As to claim 7, absent any unexpected results, the shape of the anchor element is considered a simple design consideration and it would be obvious to one of ordinary skill in the art to have said anchor element be parallelepiped and of plastic or metal as anchor elements conventionally known in the support structure reinforcing art are steel plates which are parallelepiped in shape (recognized as a rectangular plate) and metal.

As to claims 9 and 16, Ragout discloses bolts opposite the outlet of the reinforcing devices, wherein the bolts are recognized as being installed in threaded bores. As addressed in the 112 2nd paragraph rejection above, it is unclear what "the force introduction point" as recited by the applicant defines?

In regard to claim 10, it would have been obvious to one of ordinary skill in the art at the time of the invention to split the end of the carbon panel to employ the arrangement as depicted by applicant in Figure 5 (i.e. first strip parallel to outlet direction, remaining strips split fanwise from first strip) in view of the admitted prior art teaching to glue the length of the carbon panel to the face of the supporting structure, wherein the arrangement of claim 10 is recognized as an obvious engineering design that would more easily and effectively enable the length of the carbon panel to be positioned and connected to the face of the supporting structure without having to form large recesses in the supporting structure for the end elements or without having to bend or bow the carbon panel upward to have its length be positioned in contact and adhered to the face of the supporting structure.

As to the claims 11 - 14, the admitted prior art teaches that it is known to use carbon panels for reinforcing supporting structures, wherein the carbon panels are

anchored at their ends (specification, page 2, lines 28 – 35) and in some known instances glued in a pretensioned state to the face of the supporting structure (specification, page 3, lines 24 – 36). Furthermore, as disclosed by Ragout and Champleboux et al., it is known to split the ends of reinforcing devices, wherein the split ends are positioned in corresponding slots of end elements to achieve a self locking, firmer attachment of the reinforcing devices to the structures for which they are intended to reinforce. It therefore, would have been obvious to one of ordinary skill in the art at the time of the invention to split the ends of the admittedly known carbon panel reinforcing devices and to terminate the split ends in accommodating end elements as disclosed by Ragout and Champleboux et al. so as to achieve a firmer attachment of the carbon panels, having a stronger linking quality and attachment to the supporting structure in response to tensile load exerted thereon. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to cut the panel to split the ends, as cutting is recognized as a conventionally known method for splitting and only the only results would be achieved.

In regard to claim 12, and applicant's claimed limitation of gluing the fanwise arranged end strips of approximately same size in separate retaining slots of the end element, Ragout discloses coating the fanwise arranged similar sized reinforcement plies with unvulcanized rubber and installing said coated plies in the slots of the end element. The rubber is vulcanized to adhere the reinforcement plies and the end elements, thus ensuring cohesiveness of the assembly. In view of this teaching to ensure cohesiveness between the reinforcing devices and the end element, one skilled

in the art would have been motivated to glue the split ends of the carbon within the end element to achieve this same desired adherence and cohesiveness.

As to claim 13 and the limitation of separating the reinforcement into three splits, Champleboux et al. discloses such an assembly (see Figures 1 and 5). As to the pretensioned limitation, it is again noted that applicant appears to admit that gluing pretensioned carbon panels to supporting structures is known (see applicant's specification, page 3, lines 24 – 36).

As to claim 14, it would have been obvious to one of ordinary skill in the art at the time of the invention to split the carbon panels in a fiber direction as such is well known, conventional per se, in the carbon composite art.

14. Claim 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (Specification, page 3, lines 24 - 36) in view Ragout (US 4,467,836) and Champleboux et al. (US 4,895,185) as applied to claim 1 above, and further in view of Meier et al. (US 5,937,606).

The secondary reference to Ragout discloses using threaded bolts to help connect the anchor element to the support structure being reinforced (Ragout, elements 17 and 18 in Figures 3 and 4). Furthermore, as disclosed by Meier et al. it is known when employing carbon-fiber lamina as reinforcement for supporting structures to additionally anchor said reinforcing lamina by means of a wedge (end anchoring element), which can be mechanically fastened by bolts transversely extended from the carbon reinforcing lamina (Column 4, line 3 – Column 4, line 9; Column 20, lines 20 -

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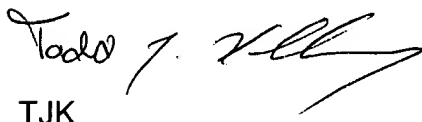
26). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to reinforce the connection between the anchor element and the supporting structure with mechanical fastenings, such as bolts, as such is known as disclosed by Ragout to connect anchor elements holding split reinforcing devices and as disclosed by Meier et al. for carbon panel reinforcing devices to have its connection additionally augmented.

Conclusion


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is **(703) 305-6386**. The examiner can normally be reached on Mon - Fri (9 - 5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


TJK

April 23, 2002


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700